

FROM THE EDITORS OF

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Intranets

A MONTHLY LOOK AT WEB DEVELOPMENTS BEHIND THE FIREWALL

INTRANET-BASED TRAINING

Seeing is Believing

**Courses conducted
over the intranet
aren't always cheap,
but they can pay off
in the long run**

By Leslie Goff

raining specialists at Chrysler Financial Corp. in Southfield, Mich., had big plans for deploying a fully interactive online classroom over the company's new intranet. They envisioned two-way live videoconferencing with streaming audio and lots of bells and whistles. It would be an impressive extension of stand-up training, reaching the Chrysler Corp. subsidiary's auto lease processors in 32 offices across the U.S. and Canada.

Then they took their plan to the information systems department.

"We didn't realize that video streaming was so system-intensive. If we had gone ahead with the video that we had planned, IS said it would have brought

Marriott's Joe Allen: You definitely have to be more multimedia-oriented, especially in the MTV age

INTRANET-BASED TRAINING

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the offices to their knees," says Don McCloud, training and personnel programs manager.

The Chrysler Financial team is proceeding instead with a scaled-down version of the original idea, opting for one-way rather than two-way video streaming and dispensing with the notion of video cameras attached to every user's PC. But team leaders are no less convinced that the intranet is an ideal platform for delivering classroom-quality training.

The vast majority of the Fortune 500 have reached the same conclusion, according to research by The Masie Center, an online learning think tank based

in Sarasota, N.Y. In a recent survey, 83% of the 350 respondents from the Fortune 500 said they will launch intranet-based training pilots this year. Despite bandwidth limitations and a significant upfront development commitment, they will test a vast array of online courses from live broadcasts to just-in-time, self-paced tutorials.

"Classroom training is a highly effective gourmet meal, and a lot of people are looking for fast food, cafeterias and home cooking because they can't afford gourmet for everyone," says Elliott Masie, president of The Masie Center.

From the training department's point of view, the intranet has emerged as a user-friendly, cost-effective training medium that reaches employees it couldn't otherwise get to with information that frequently grows obsolete before everyone can reach a classroom. From the IS department's perspective, training applications have emerged as a way to put real business applications on the intranet. These two seemingly contradictory drivers for intranet-based training converged in the second quarter of 1997, Masie notes, resulting in an explosion of user and vendor activity (see story opposite page).

Of course, not all end users will want to use intranet-based training, so some evangelizing is necessary to gain the support of management and trainees. And not all types of training are conducive to the online approach, which can be expensive and not garner immediate financial return.

But project leaders see intranet-based training applications as paths to reaching more employees with more training more consistently more of the time. They are easier to administer than traditional courses, reduce

travel costs and time spent away from the office, and reinforce corporate policies and procedures in a unified message across the corporation. They lend a new credence to the idea of the autonomous, empowered knowledge worker.

SMART RESOURCES

At some companies where intranet-based training has been going on for a while, the idea of the knowledge worker has begun to take shape. The Bureau of National Affairs, Inc. offers a three-hour "Introduction to Capitol Hill" course. The government and business journal publisher in Washington offers the online seminar to new employees and its 1,800 journalists, customer service representatives, sales force and circulation staff, which can review it on an as-needed basis.

For example, a new reporter covering a recently introduced bill in Congress can use the online seminar to review how a bill moves through its paces before he even steps foot on the Hill. Whereas the classroom version of the course would rely on printed materials, such as examples of old bills, the intranet course links to a server where he can review the actual new bill, contact information such as the congressional offices of the sponsor and the Constitution articles on which the bill is based.

And instead of trying to recall congressional protocol from a class that he took maybe several months before or waiting for the class to be offered again, the reporter can refresh and prepare at the critical time. Moreover, the online seminar can accommodate all of the company's employees, such as proofreaders who need to fact-check articles, salespeople who need to understand the relevance of a journal to potential advertisers or customer service reps who need to answer questions about the content and focus of various publications.

"From a business point of view, having employees memorize the material is not our goal," says Nancee

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**"YOU HAVE TO BE flexible.
This is an evolving technology,
and there will be a lot of
trial and error."**

**JOHN FLYNN
COMMONWEALTH EDISON
(SEE STORY, PAGE 6)**



An Active Marketplace

User interest in intranet-based training has certainly not gone unnoticed by vendors, who are rushing to market with a plethora of development tools. In the first six weeks of the year alone, The Masie Center (www.masie.com), an online learning think tank based in Sarasota, N.Y., received announcements of 32 new products.

The market should consolidate this year, predicts Elliott Masie, president of The Masie Center, but products are now segmented into five different categories:

- **AUTHORING TOOLS:** used to create and code content.
- **OPEN LEARNING ENVIRONMENTS:** turnkey frameworks for developing, deploying and managing training over the intranet.
- **CONTENT-SPECIFIC ENVIRONMENTS:** frameworks tied to content libraries created by training vendors.
- **TECHNOLOGY-SPECIFIC ENVIRONMENTS:** frameworks tied to specific multimedia-enabling products.
- **COLLABORATIVE ENVIRONMENTS:** proprietary frameworks used to support live-distance learning.

Last year, companies spent between \$60 million and \$70 million on authoring tools as they prepared pilot projects to convert their training programs to intranet form. This year should be the year when online learning environments, especially collaboration environments, take off, Masie says. "That's the arena where the dollars are the most serious. Companies are looking at spending from the high teens to seven figures for a knowledge management system."

Across all product segments, Masie says he expects more and more vendors to start offering consulting and other services along with their products.

PRODUCT SAMPLER

AUTHORING TOOLS

Allen Communications

QuestNet Plus

Salt Lake City

(800) 325-7850

www.allencomm.com/software/quest

Selected for Marriott's payroll processing course on the intranet.

Asymetrix Learning Systems, Inc.

ToolBook

Bellevue, Wash.

(425) 637-5883

www.asymetrix.com/products/authoring.html

Macromedia, Inc.

Authorware

San Francisco

(415) 252-2000

www.macromedia.com/software/authorware

Selected by Commonwealth Edison's nuclear power division for intranet-based software training.

OPEN LEARNING ENVIRONMENTS

Lotus Development Corp.

LearningSpace

Cambridge, Mass.

(617) 577-8500

www2.lotus.com/products/learning-space

Oracle Corp.

Oracle Learning Architecture

Redwood Shores, Calif.

(415) 506-8768

ola.us.oracle.com/html/visitor_home.html

WBT Systems

TopClass

Dublin

(353-1) 670-4725

www.wbtSystems.com

CONTENT-SPECIFIC LEARNING ENVIRONMENTS

CBT Systems Ltd.

CBT Campus

Menlo Park, Calif.

(800) 387-0932

www.cbtsys.com

NetG SkillBuilder

SkillVantage Manager

Naperville, Ill.

(800) 265-1900

www.netg.com

AUDIO AND VIDEO ENVIRONMENTS

Real Networks, Inc.

RealSystems 5.0 Intranet Solutions

Seattle

(206) 674-2303

www.real.com/server/intranet/index.html

Selected by 3Com for the addition of streaming video and audio to all of its intranet-based training courses.

VDOnet Corp.

VDO Live On-Demand

Los Gatos, Calif.

(415) 846-7700

www.vdo.net

COLLABORATIVE ENVIRONMENTS

Centra Software, Inc.

Symposium

Lexington, Mass.

(617) 861-7000

www.centra.com

DataBeam Corp.

DataBeam Learning Server

Lexington, Ky.

(606) 425-3500

www.databeam.com/products/index.html

Used by Siemens Business

Communications (see story, page 11).

Ilinc

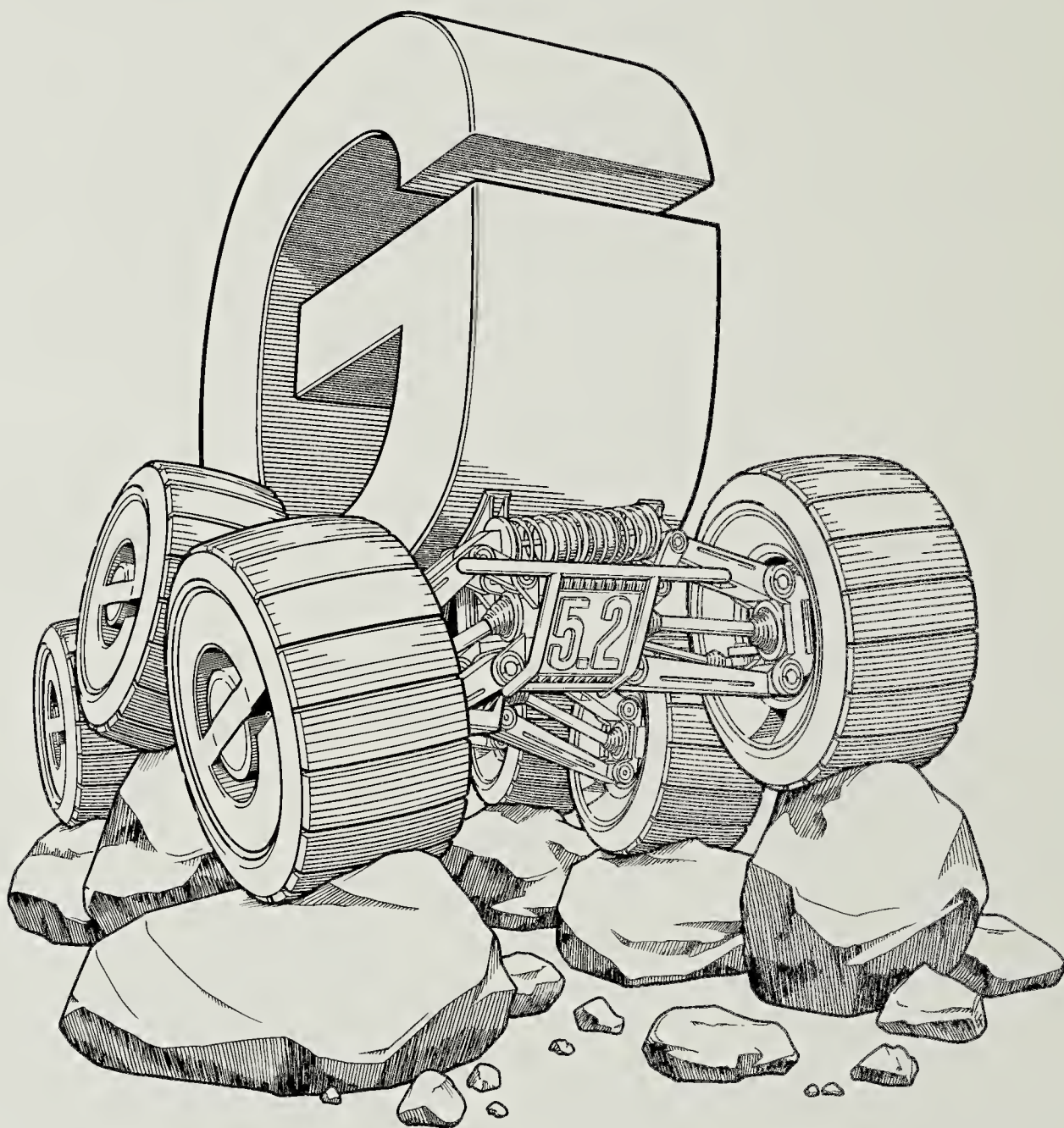
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Selected for Chrysler Financial's lease processing software course.





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G R O U P W I S E

INTRANET-BASED TRAINING

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Simonson, a training specialist at The Bureau of National Affairs. "We want to give it to them so they have it at their desks when they need it. We see [intranet-based training] as online resources for knowledge workers."

Networking vendor 3Com Corp. in Santa Clara, Calif., started training over the intranet more than 18 months ago and already has 70 courses online. They have evolved from an initial course on "How to Use the Intranet" to marketing and sales courses such as "Virtual Sales Kits" for major product lines and tutorials on subjects such as "How to Work With Our Channel Partners." Each functional business unit, from customer support services to human resources to corporate communications, has at least some intranet-based courses.

The courses themselves mainly consist of Microsoft Corp. PowerPoint presentations once used in live courses that have now been hyperlinked. This quarter, 3Com is adding streaming audio and video, using Real Networks' RealMedia 5.0 environment, says Scott Baker, director of Web services in 3Com's Global Information Services group. Users will have the

option of selecting the pared-down PowerPoint version of the course or a multimedia version, accommodating each employee's interests and style of learning, available time, bandwidth and desktop configuration.

"The company is moving toward a Web-centric communications model, and our employees understand that, so we've had heavy usage," Baker says. "As we go along we'll probably reduce our live courses and replace them with online learning."

EASY PICKIN'S

For early intranet-based training pilots, technical training for IS and end users is the "low-hanging fruit," Masie says, because the content is procedural, it changes frequently and everyone in the company needs it at some point.

The pilot at Chrysler Financial, for example, will deliver training in new lease processing software to 250 geographically dispersed workers. The corporate finance division of Marriott International, Inc. in Bethesda, Md., will roll out an intranet-based course on its proprietary payroll processing system this year. Commonwealth Edison Co., a Chicago-based utility, is developing an intranet-based course

for inventory management software used in its nuclear power division (see story below).

Those companies are in the throes of sorting out the content and technical issues associated with putting a class online. These include struggling with bandwidth, breaking the material down into manageable "chunks," accommodating PCs of varying capacities and choosing authoring tools and online learning environments. All require the input of closely integrated teams of IS staffers, trainers, business unit managers and end users, as well as outside help if a company lacks the expertise (see story online at www.computerworld.com/intranets).

At Chrysler Financial, the training team learned a valuable lesson, says Karen Cowan, a training specialist who reports to McCloud: "You have to get IS involved very early in the process."

In Marriott's corporate finance division, Joe Allen, a performance support and training specialist who has a hybrid background in education and technology, is leading the development of an intranet-based payroll processing course. As many as 750 people attend the three-day live version of the course

Utility Plugs into Intranet-based Training

Commonwealth Edison's first intranet-based training project goes to the core of its nuclear power division's operations.

The course is on the division's inventory management software, which enables engineers to track and order safety components required in the highly regulated nuclear power

industry. Originally, the course was distributed via CD-ROM, but that didn't work out as anticipated, says John Flynn, a multimedia training specialist in the division's production training center in Wilmington, Ill.

"The LAN administrators at six different sites were supposed to put the CD-ROM on their LANs, and hopefully the course would be distributed out to the rest of the company," Flynn

explains. "But each site [configuration] was somewhat different, and users could never find it on the LAN, and if we had an upgrade or some minor changes, we would have to redistribute the CD-ROM. It was just too cumbersome to manage."

The CD-ROM, developed using Macromedia, Inc.'s Authorware content creation and coding tool, was only two years old when Flynn and



THE TEAM developing Marriott's intranet-based payroll processing course includes (from left):

**Rolaine Johnson, Dave Wood, Carol Anderson,
Rodanthi Zaharopoulos, Gladys Salazar, Joe Allen,
Terry Holbrook and Jasmin Islam-Smith**

per year because of attrition and turnover, as well as the hotel chain's aggressive merger and acquisition activity. When the online version debuts later this year, that number could drop off significantly, resulting in cost savings and increased productivity.

Key to getting users on-board:

deploying new PCs for employees; possibly upgrading intranet servers and individual PCs to handle the application; solid instructional design; and a simple yet compelling presentation, including simulations and exercises, Allen notes. He declined to reveal costs. "You definitely have to

be more multimedia-oriented, especially in the MTV age," Allen says. "Users get so much flash and glitter on TV that they expect it on their computers, too. But I know what the technical limitations are in delivering it. We'll have sound effects and audio to enhance the experience, but we won't have any video because not all of our PCs can accommodate it, and we don't want to deter employees from using the course."

While intranet-based training promises many advantages, it's not without drawbacks. It isn't particu-

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his team decided to convert it to an intranet-based course. Determined not to face the same dilemma again two years later and considering a recommendation from a consultant, they contacted another company where intranet-based training had already taken off. They visited the company, Boeing International Corp., for a benchmarking session, which paid off in a number of ways, Flynn says.

Besides providing insight into the development process, Boeing's crew passed along technical tips that

enabled Flynn's team to get its intranet course up and running in under a week. For example, team members learned that they had to reconfigure six Multipurpose Internet Mail Extension, or MIME, types in the operating system so the Web server could process necessary commands from Authorware. "That saved us at least two or three weeks and a lot of phone calls," Flynn says. They also learned how to use Authorware to convert the existing course to accept TCP/IP commands so it would run over the intranet.

Flynn declined to provide costs and said it was too early to assess savings.

Flynn and his team are now assessing whether to put a centralized training library system in place, what future hardware requirements will be and what training quality standards must be implemented.

"You have to be flexible. This is an evolving technology, and there will be a lot of trial and error," Flynn says. "We hope we're making the right moves, but basically we're navigating in uncharted waters."

— LESLIE GOFF



"TO THE OUTSIDE WORLD THIS IS A PIZZA COMPANY. TO ME, IT'S AN ENTERPRIS

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MATTHEW MAGUIRE

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SOLUTIONS

INTRANET-BASED TRAINING

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larly well suited for conceptual ideas that demand face-to-face contact and body language to fully convey the lessons, such as how to negotiate or work well in teams. It also eliminates the social contact with peers that contributes to some learners' absorption and retention. And while reducing travel expenses by using the intranet is a big incentive for the company, employees who don't usually leave the office regard traveling from Omaha to a seminar in Boston or New York as a perk.

Moreover, the anticipated savings can take a while to materialize. The development time and costs are at least equal to, if not greater than, the costs of instructor-led training, says John Schulz, an instructional designer at IS consulting firm Cara Corp. in Oak Brook, Ill. Depending on the richness in multimedia and functionality, the authoring tools and the infrastructure requirements, an intranet-based course might start in the four figures for a basic conversion of classroom content to a hyperlinked PowerPoint presentation. It can range to a seven-figure commitment for high-bandwidth, two-way live video streaming.

Delivering training over the intranet may not be cheaper than classroom training initially, but those companies trying it believe that over time it will be more cost-effective. Chrysler's McCloud notes that training expenditures will remain the same this year, but the intranet project reallocates the budget "into value-added activities" such as course content development, instead of pure costs such as travel expenses.

Designing a course may be more involved than it seems. It requires analyzing how a job is performed and how the current training is achieved; identifying course objectives; creating the lesson plan; developing storyboards; and adding the graphics and multimedia elements, explains John Flynn, a multimedia training specialist

in the production training center at Commonwealth Edison's nuclear division in Wilmington, Ill. Development time and assembling the requisite staff

to perform each of these steps are not inexpensive propositions. Add-on costs can include consulting help and professional talent for such elements as voice-overs.

TRAINING TIPS

■ **PLACE A CLEARLY VISIBLE training link on the intranet home page, and don't force users to drill down several times to find the training relevant to them.**

■ **DESIGN INTRANET-BASED training courses for the lowest common desktop in the company.**

■ **WORK CLOSELY WITH corporate communications to evangelize the availability of intranet-based training and gain user interest.**

■ **IN ADDITION TO the online courses, provide users with some instruction on how to use intranet-based training.**

■ **BREAK THE COURSE content down into "chunks" that are no longer than two hours in length, particularly for courses that will use live, instructor-led video-streaming broadcasts. With self-paced courses, deliver the content in a nonlinear format that allows users to explore the material according to their personal needs and interests.**

■ **EVEN SIMPLE CONVERSIONS of classroom training should be highly interactive, incorporating features such as simulations, quizzes and worksheets.**

■ **KEEP IN MIND that some people learn best in a live classroom environment. Intranet-based training can't necessarily displace all live training.**

THE EVENTUAL PAYOFF

The long-term savings come from reducing travel and employees' time away from the office attending classes. "Even eliminating one hour of training for 1,000 to 50,000 students can be quite a cost savings over a year," Schulz says.

Intranet-based training also eliminates incremental costs incurred with computer-based training delivered on CD-ROM, Flynn notes. Commonwealth is converting a CD-ROM-based course on how to use the nuclear division's mission-critical inventory management package to an intranet-based course, largely because updating the material and redistributing CD-ROMs each time features are added or changed is time-intensive and expensive for both the training staff and the LAN administrators at remote locations (see story, page 6). Plus, The Bureau of National Affairs' Simonson notes, intranet-based training saves on paper for class handouts, manuals that have to be reprinted and distributed frequently and other materials.

In fact, Flynn estimates that intranet-based training could reduce yearly spending on live training by as much as one-third. "Consider that a new engineer at the company would have to go to a four-to six-hour class to learn how to use our inventory management package. If you figure the costs for his time, plus what the class costs, plus the travel costs, you've spent a lot before [the student] even walks in the door," he says.

Give the same engineer the option of getting the same course at his desk in several two-hour chunks at his own pace, Flynn adds, "and the savings begin to snowball."

Goff is a freelance writer in New York.

Virtual Training Saves \$800K in First Year

By Linda Wilson

Onetime telephone maker Siemens Business Communications Systems, Inc. is transforming itself into a company whose products combine voice, data, fax and video. Doing so requires the Santa Clara, Calif.-based unit of Siemens AG to train its employees in new communications technologies, such as frame relay and TCP/IP.

Enter the Virtual University.

Accessed over the company's intranet, it joins students and a teacher in live courses that students — usually 16 to 22 at a time — take right at their desks. So far, about 400 employees, mainly

in sales and systems design, have participated.

Discussing the system is William Maybeck, director of education.

HOW IT WORKS

Students go to the Virtual University Web page at a designated time, enter a

password and dial in to an audio bridge. Then they follow along as the teacher goes through the material. Java applets, sent to students' PCs at the start of the class, are used for such things as hand-raising and document markup.

WHAT ABOUT VIDEO?

Siemens plans to add desktop video. "Video over the intranet suggests more bandwidth. We could do it today, but we need to make sure it doesn't interfere with all the internal e-commerce traffic — the mission-critical stuff," explained Al Gordon, program manager for Virtual University.

WHY OVER THE INTRANET?

It would have been harder to coordinate students' schedules for traditional classroom education — and expensive to pay for travel. The intranet approach also allows Siemens to easily update materials as the technology quickly changes. "We had to find a way to get this skill-building to our employees in almost just-in-time learning."

RETURN ON INVESTMENT

The system cost less than \$50,000 to set up, including \$15,000 for the server software. A five-day course costs about \$230 per student (for long-distance connection charges and any materials downloaded from a Web site), compared with about \$2,000 for a classroom environment (for airfare, hotel accommodations, auto rental, per diem and books). Siemens saved a total of \$800,000 in 1997 but expects to save even more this year.

Siemens' WILLIAM MAYBECK: 'We can truly become consultants and mentors to our students'

RESULTS

The Virtual University is more conducive to learning because courses are structured in bite-size modules, homework involves tasks in real-work settings and students return for follow-up sessions. "We can truly become consultants and mentors to our students as they apply the skill instead of being an instructor who delivers information on a crash-course basis," Maybeck said.

DISADVANTAGES

Web-based training is unsuitable for teaching behavioral skills because that usually requires role-playing. Future courses on topics such as management will combine classroom-based and intranet-based learning.

CHALLENGES

Both students and teachers must change their behavior. Because students take courses in real time but at their own desks, they need to concentrate and avoid interruptions. Teachers need to design courses that are very interactive because otherwise, they won't know whether students are paying attention. "You don't have the whites of their eyes in front of you," Maybeck said.

TOOLS

Two full-time teachers create courses covering eight technical subjects. For homework and tests, they often use packaged computer-based tutorials. Learning Server software from Data Beam Corp. enables the live sessions.

Wilson is a freelance writer in Glen Ellyn, Ill.

HOW THEY RATE

For the full interview with William Maybeck, RealAudio clips and screen shots, visit

www.computerworld.com/intranets

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